

The Coreidae of Kansas

by

Howard Owen Deay, A. B.,
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Approved by:

Instructor in Charge



Head of Department

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The Coreidae of Kansas

The purposes of this paper are: (1) to give a list of the species of Coreidae that have been taken in Kansas to date; (2) to give the counties in which they have been collected; (3) to give the original description of each species found; (4) to determine whether the genital capsule and claspers of the male have specific value; (5) to make keys for the separation of the groups down to species.

The material examined is in the Snow Entomological collection at the University of Kansas, Lawrence, and in the Entomological Collection at the Kansas State Agricultural College, Manhattan. The material in the Snow Collection is an accumulation of years of collecting by the members of the State University Biological Survey. Collections have been made by them in nearly every county in the state. However, most of these surveys were made in the months of July and August and, as the Coreidae as a rule are more numerous in the autumn, it is likely that the distribution of the different species is much more extensive than the records show.

The writer wishes to express his appreciation to Dr. H. B. Hungerford, under whose direction the work was

done, and who gave most helpful advice and criticism; Professor Harry G. Barber of Roselle, New Jersey, who checked the writer's identifications; to Dr. P. A. Readio and Kathleen C. Doering for their kindly help and criticism, and to all others who in any way have assisted in this work.

The Family Coreidae

The members of this family vary greatly in form. Some of the species are among the largest of the Hemiptera and others are very small and inconspicuous; some have peculiar expansions or shapes of the tibiae or antennae; in some the femora are swollen or armed or both; and in some the hind coxae are widely separated while in others they are contiguous.

The family is characterized as follows: the antennae are situated above an imaginary line drawn from the eye to the base of the rostrum, and are four segmented; the vertex of the head is not transversely impressed; the rostrum is four segmented; the scutellum is triangular and of small or medium size, not reaching the middle of the body; the hemelytra are usually complete and composed of clavus, corium, and membrane; the membrane is furnished with numerous veins which spring from a transverse basal vein, and are more or less anastomosing; the tarsi are three segmented; the ocelli are present.

In the male the last ventral segment is modified to form a secondary sexual organ, the genital capsule. It bears a pair of clasping organs, the claspers, which are attached to the surface and are concealed in the genital

capsule in the members of three of the subfamilies (Merocorinae, Coreinae and Pseudophloeinae).

The species of the family found in Kansas fall into three groups when classified by the genital capsule of the males. The males of the subfamilies Coreinae (Pl. I, fig. 5), Merocorinae (Pl. I, fig. 4) and Pseudophloeinae (Pl. III, fig. 1) have a single convex genital capsule which encloses the claspers, internal genitalia, and the anal segment. The dorsal aspect of this capsule has good specific characters in all the species examined. The writer made drawings of the ventral aspect of this capsule when that aspect had good specific characters because the insects can then be identified without relaxing them, the dorsal aspect being obscured by the tergum.

The genital capsules of the males in the subfamily Alydinae (Pl. III, fig. 5) are not closed at the caudal end as those of the above three subfamilies, but are open so that the claspers are exposed except in the genus Stachyocnemus. The genital capsule is further characterized in this subfamily by the presence of a hook on the dorsal surface. Dr. H. B. Hungerford has suggested that these be called "surcapsular hooks", and the writer has so designated them. These hooks have specific value not only from their shape and position but also from the teeth on them. The writer has found no reference to these hooks in the literature.

The genital capsules of the males of the subfamily Corizinae (Pl. III, fig. 4) are open at the caudal ends as in the Alydinae, but on the whole they have a bulbous shape as do the genital capsules in the Coreinae, Merocorinae and Pseudophloeinae. The chief characteristic of the genital capsule in this subfamily is the fact that it and the eighth segment are drawn back up into the body so that they are not visible from a ventral aspect. This condition holds true in the female as well and at first glance it is difficult to distinguish the sexes. The shape and form of the genital capsules in this subfamily are constant for the species and are good specific characters.

The shape, size and form of the claspers are constant in each species and are specific. They can be readily seen in the subfamilies in which they are concealed by relaxing the specimens and pulling out the genital capsules.

The family is a large one. Lethierry and Severin (1893-96) list 1320 species, which are divided into 29 subfamilies, as occurring in the world. Many species have been described since then. Van Duzee in his catalogue lists 125 species, which are divided among 48 genera and five subfamilies (Merocorinae, Coreinae, Pseudophloeinae, Alydinae and Corizinae), as occurring in North America north of Mexico. Two of these subfamilies (Alydinae and Corizinae)

have been raised to family rank by Parshley (1923) and Blatchley (1926). Representatives of all five of the subfamilies, twenty-one of the genera and thirty-five of the above species are found in Kansas. Fourteen of these thirty-five species have not been recorded from Kansas before.

Key to the Kansas Subfamilies of Coreidae

- A. Head large, the part between the eyes wider than the scutellum; body slender.....Alydinae.
- AA. Head smaller, part between eyes narrower than the scutellum; body rather stout.
 - B. Metasternal orifices obsolete.....Corizinae.
 - BB. Metasternal orifices distinct.
 - C. Hind coxae contiguous or nearly so; upper surface, except membrane, thickly beset with small granules, each bearing a short seta; first segment of antennae shorter than the head.....Pseudophloeinae.
 - CC. Hind coxae widely separated; upper surface not thickly beset with small setae-bearing granules; first segment of antennae rarely shorter than the head.
 - D. Apex of hind tibiae ending beneath in a short projecting spine; length less than 9 mm.....Merocorinae.
 - DD. Apex of hind tibiae without a projecting spine; length 10 mm. or more.....Coreinae.

Subfamily Merocorinae (Stal)

This subfamily is represented by a single genus and two species in North America north of Mexico. One of the two species occurs in Kansas.

Merocoris distinctus Dallas
(Pl. I, figs. 4, 4A)

Dallas, William S.: List of the Specimens of Hemipterous Insects in the Collection of the British Museum, Pt. II, p. 419, 1852.

Original description (translated by the author):

"Closely related to the preceding Merocoris (M. typhaeus (Fabr.)); chief difference is that the head is more square, both sides of the front is subspinose; antennae longer, first and second segments black, third dusky, black punctured, fourth black; posterior tibiae without curves.

"Female. Length $7/24$ in."

Oblong-oval species of medium size; head small, subquadrangular, porrect, much shorter than the pronotum, armed above near base of each antenna with a pair of short, widely separated, divergent spines; first segment of antenna stout, subcylindrical, constricted near its base,

Subfamily Coreinae (Stal)

This subfamily is represented in the United States by eight tribes. Representatives of five of these eight tribes are found in Kansas.

Key to the Tribes of Coreinae

- A. Hind femora not greatly enlarged, rarely spinous, in which case the antennal tubercles are moderate in size and separated by a space greater than their own width.
 - B. Posterior tibiae dilated.....Anisoscelini.
 - BB. Posterior tibiae not dilated.
 - C. Antennal tubercles large and prominent, close together, extending much beyond the apex of tylus; lateral angles of thorax produced in an acute spine; third antennal segment flattened and expanded.....
 -Charlesterini.
 - CC. Antennal tubercles moderate in size, distant, not extending beyond apex of tylus; lateral angles of thorax not spined, third antennal segment not flattened and expanded.

D. Second and third antennal segments

three sided; hind tibiae three sided

.....Chelinidini.

DD. Antennae cylindrical; tibiae simple,

cylindrical.....Coreini.

AA. Hind femora spinous or tuberculate, usually much enlarged; antennal tubercles large, separated by a space generally less than their own width.

B. Tylus deflexed, not projecting much if any before antennal tubercles.....Mictini.

BB. Tylus not deflexed, extending much before antennal tubercles.....Acanthocephalini.

Tribe Acanthocephalini (Stal)

This tribe is represented in the United States by one genus. This one occurs in Kansas.

Genus Acanthocephala Laporte

Five species of this genus occurs in North America north of Mexico. One of them occurs in Kansas.

Acanthocephala terminalis (Dallas)
(Pl. I, figs. 7, 7A)

Dallas, William S.: List of the Specimens of Hemipterous Insects in the Collection of the British Museum, Pt. II, p. 431, 1852, Metapodius.

Original description: "A blackish-fuscous Metapodius, opaque, hairy; antennae pitch-black, last segment golden; tarsi golden, last segment and claws fuscous.

"Length, female $5/6$ in.

"Above dark brown, opaque, clothed with very short yellowish hairs, and very thickly and finely punctured. Thorax with the lateral margins smooth, the lateral angles somewhat prominent and obtuse. Scutellum reddish brown. Margins of the abdomen with a small spot at the apex of

each segment. Abdomen beneath blackish, somewhat shining, sparingly clothed with short yellow hairs; second and third segments with three small impressed pale approximated points on each side of the disc. Breast with a reddish orange spot at each aperture of the odoriferous apparatus; antepectus and the posterior margin of each of the other segments punctured. Legs pitchy, with the four anterior tibiae brown; thighs serrated beneath; posterior tibiae not very broad, dilated on the outside to within about one-fourth of their length from the apex, on the inside to about the middle; the margin of the outer dilatation strongly emarginate at the middle; the apical portion of the inner margin of the tibia with a few minute teeth; tarsi reddish orange, with the apical joint and the claws brown. Antennae pitchy black, with the apical joint bright orange.

"N. America. From Mr. Children's collection."

The writer finds the length of the females to be from 22 to 25 mm., and that of the males to be from 18 to 20 mm.

Distribution: This species, as shown by the accompanying map, seems to be confined to eastern and central parts of the state.

Leptoglossus phyllopus (Linnaeus)
Pl. I, Figs. I, 1A)

Linnaeus, Carl: Systema Naturae, Ed. 12, i, pt. 2, p. 731, 1767, Cimex.

Original Description:-- "Thorax immaculate blackish: upper wings with a whitish band: hind-shanks membranaceous and toothed.

"Inhabits America."

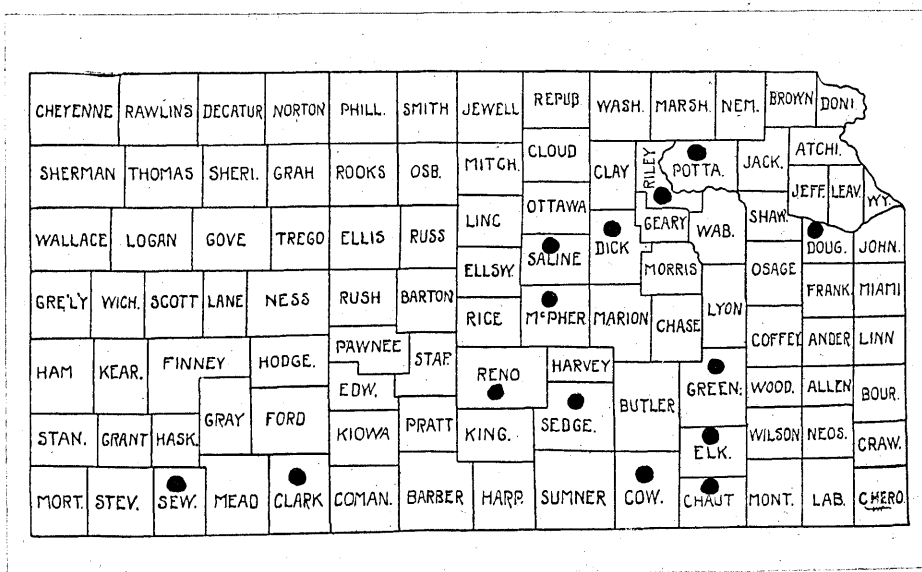
Linnaeus' brief description is scarcely adequate to distinguish phyllopus from the other Leptoglossus, so I shall describe it from the specimens in the Entomological collection at the University of Kansas.

Size: Length, female, 18 to 21 mm., male, 17 to 20 mm.

Color: Above chestnut-brown, thinly clothed with very fine, short, appressed yellow hairs; three narrow stripes on head, and front margin of pronotum, dull yellow; first segment of antenna fuscous, second, third and fourth yellow; elytra with an ivory cross-bar opposite base of membrane; under surface reddish-brown mottled with numerous blackish dots and thickly pubescent with short silver-white hairs; legs reddish-brown.

Structural characteristics: Head three-fourth the length of the pronotum, convex; beak long, reaching to or behind the meta-coxae; antennae with basal segment stout, as long as head, second and fourth segments subequal, longer than the third. Pronotum with humeral angles prominent, slightly projecting upward, their tips feebly toothed. Hind femora slender, the spines beneath relatively small. Inner dilation of the tibiae much the narrower, reaching the middle of tibiae, its margin finely toothed; the outer reaching the apical third, its margin with two wide scallops.

Distribution: As is shown by the accompanying map, it has been collected throughout the central part of the state and also in the southwestern part as well as in Douglas County in the eastern part.



Leptoglossus corculus (Say)

Say, Thomas: Descriptions of new species of Heteropterous Hemiptera of North America. New Harmony, Ind., p. 12, 1832; Transactions of the New York State Agricultural Society, Vol.,XVII, p. 770, 1857 (Reprinted by Fitch); The Complete Writings of Thomas Say on the Entomology of North America, Vol. I, p. 326, Anisoscelis.

Original description: "Fuscous; antennae rufous; posterior tibiae dilated, not sinous.

"Inhabits Florida.

"Body reddish-brown, rather dark, minutely and densely punctured: head simple, with three rufous lines: antennae rufous; basal joint much shorter than the second, blackish above, second joint longest; ultimate joint rather shorter than the preceding one, fuscous: thorax with the angles not prominent, rounded: scutellum undulated on the disc: tergum on the lateral margin with yellowish lines at the incisures: beneath dull rufous with numerous black points; rostrum extending to the middle of the venter: thighs blackish above towards the tip, spinous beneath, posterior pair a little thickened; tibiae dull yellowish; posterior pair dilated, not undulated on the edge, fuscous with small yellowish spots; the dilatation not continued to the tip; inner edge with a few short spines.

"Length four-fifths of an inch.

"I obtained two individuals on St. John's river.

In one of the two specimens the nervures on the middle of the hemelytra are of a paler color, as if, in some individuals, a pale band might exist in that part".

I have but one specimen of this species, an unlabeled female, taken from the student collection at the Kansas State Agricultural College. This specimen agrees with the original description very closely, especially with one of the specimens that Say collected on the St. John's river in that the nervures on the middle of the hemelytra are of a paler color.

Leptoglossus oppositus (Say)
(Pl. I, figs. 3, 3A)

Say, Thomas: Descriptions of new species of Heteropterous Hemiptera of North America. New Harmony, Indiana, p. 12, 1832; Transactions of the New York State Agricultural Society, Vol., XVII, p. 771, 1857 (Reprinted by Fitch); The Complete Writings of Thomas Say on the Entomology of North America, Vol. I, p. 327, Anisoscelis.

Original description: "Reddish-brown; hemelytra with a white point in the middle of the corium; antennae rufous; head trilineated; posterior tibiae dilated and sinuated.

"Inhabits Indiana.

"This is very closely allied to albicinctus Say, but is uniform in its differential characters. It may be known by the small white points of the hemelytra."

Hind femora relatively slender, their teeth relatively short. Hind tibiae with dilations broadly oval, reaching but little beyond the middle of the tibiae, the inner more narrow and bearing a few teeth, the outer with two rather deep scallops. Length, female, 18 to 20 mm.; male 17 mm.

It has not been recorded from Kansas before.

Leptoglossus clypealis Heidemann
(Pl. I, figs. 6, 6A)

Heidemann, Otto: The Proceedings Of the Entomological Society of Washington, Vol. XII, p. 195, pl. 8, fig. 1, 1910.

Original description: "Body oblong, yellowish-brown, covered with short golden hairs. Head as long as the thorax, narrowing towards the front, the upper part with two parallel black stripes and a short one behind each eye; clypeus not rounded at tip, but conspicuously projecting as a stout spine to nearly the apex of the first antennal joint; rostrum comparatively short, extending to behind the middle coxae or to the first abdominal segment. Antennae reddish-brown, about as long as the distance from head to the middle of body; basal joint with a black line exteriorly, equal in length to the third; second and terminal joints subequal. Thorax gradually sloping towards front, finely wrinkled and confluent punctured; lateral margins slightly sinuate anteriorly; the humeral angles bluntly rounded, the edge a little upturned and blackish; the callosities shining black, feebly elevated, separated by a light-brown somewhat raised line, continuing faintly backward; the disk of thorax moderately convex, with a few scattered dots; submarginal

part of posterior margin depressed, and in front of it a transverse sharp ridge. Scutellum black, the tip yellowish, strongly wrinkled. Hemilytra very finely confluent punctured and with a yellowish-white zig-zag band across the corium. Membrane transparent, pale brown, darker at base. Dorsal part of abdomen more or less blackish, the inner sides orange; underside of body pale brown, and dotted black. Legs reddish-brown; hind femora sulcate beneath, armed with a double row of stout black spines; upper side mostly blackish streaked, beset with hardly any tubercles. The membranous expansion of hind tibiae spatulate-shaped, extending towards apex about two-thirds, being broadest near the point; the inner side of expansion not much narrower than the other side, edged apically with a few spines, finer ones on a single part of the hind leg; the outer expansion feebly sinuated twice, carrying two spines, the surface of the membranous expansion dark brown, wrinkled, and finely golden pubescent, covered with numerous small yellow spots and a larger transparent one on the inner side. Venter with a shallow sulcation.

"Length 16 to 20 mm.: width across thorax 4 to 5 mm.

"Type: No. 13229, U. S. National Museum."

This species is distinguished from the other

Tribe Mictini (Stal)

There are six genera of this tribe in North America north of Mexico. Of these, three are represented in Kansas.

Key to the Kansas Genera of Mictini

- A. Antenniferous tubercles spined on the outer side; head with a distinct tubercle behind each eye
.....Euthochtha.
- AA. Antenniferous tubercles not spined on the outer side; head not tuberculate behind the eyes.
 - B. Truncate hind margin of the pronotum not wider than base of scutellum.....Mozena.
 - BB. Truncate hind margin of pronotum distinctly wider than base of scutellum.....Archimerus.

Genus Mozena Amyot and Serville

This genus is represented in North America north of Mexico by six species. One of them has been taken in Kansas.

Mozena obesa Montandon
(Pl. I, figs. 8, 8A)

Montandon, A. L. Bulletin de la Societe des Sciences de Bucarest--Roumaine, Vol. VIII, No. 1 and 2, p. 3, 1899.

Original description (translated by the writer):

"Rather uniform chestnut brown in color; lateral angles of pronotum obtuse, not prominent; abdomen dilated, much rounded on sides.

"Head without punctures, with some very feeble rugosities, scarcely visible, slightly paler on the sides. Antennae rather slender, a little longer than the head and pronotum together; the first segment dark brown, a little longer than the median part of head but visibly shorter than the second; the third and fourth subequal, each longer than the first.

"Pronotum with dark punctures easily visible on the disk and posteriorly, the free spaces between the punc-

tures glossy and lightly calloused, paler than the punctures, of the same tint as the anterior part of pronotum. The anterior lateral sides straight scarcely obtusely sinuated, notched by a series of unequal and irregular black tubercles on their anterior two-thirds, the lateral angle straight or very slightly obtuse, not conspicuous, directed transversely, subrounded, apex not acute.

"Scutellum with rather scattered punctures, the spaces between the points slightly elevated into irregular transverse cushions.

"Elytra clear brown, nearly uniformly colored, a little darker on the apical angles, with scattered dark brown punctures. Each sunken point on the elytra as on the pronotum gives rise to a very small golden hair. Membrane brilliant bronze.

"Top of the abdomen rugose; connexivum fully rounded, dark brown with the base of the segments more or less pale; a small sharp projection at the posterior angle of each of the segments.

"The tip of the rostrum black; fits into a short groove each side of which is bordered by a small elevated lamella situated on the anterior part of the metasternum behind the anterior leg.

"Legs brown, rugose, the posterior femora of the

males more or less reflexed with two rows of white tubercles on the underside and some spiny tubercles, very scattered and irregular on the upper side; the posterior tibiae slender and curved with a strong tooth on the middle of their innerside, much narrowed on their apical half and spiny on this from the median tooth up to the apex.

"The underside of the body brown more or less rugose, rather uniform, a little clearer on the chest, a small white band on the sides of the abdomen, narrow, irregular, most accented on the fourth and fifth segments.

"Length 20--21 mm. Width between the lateral angles of pronotum 8--9 mm.; at the base of the elytra 7.5--8 mm.; across the abdomen 7--10 mm. Florida (two males in my collection, received from W. H. Ashmead several years ago under the name of Archimerus calcarator F. . He did not know their true name.)

"By the form of its pronotum with the anterior lateral sides nearly straight; the lateral angles a little projecting; the abdomen dilated, noticeably larger than the pronotum, the first segment of the antennae a little shorter than the second, this insect should not be confused with any of the other species of the genus."

Distribution: It has been collected in Rawlins, Barber, Kiowa, Montgomery and Riley counties.

Genus Archimerus Burmeister

Four species of this genus are listed as occurring in North America north of Mexico by Van Duzee. One species occurs in Kansas.

Archimerus alternatus (Say)
(Pl. I, figs. 5, 5A)

Say, Thomas: Journal of the Academy of Natural Science Philadelphia, IV, p. 317, 1825; Complete Writings of Thomas Say on the Entomology of North America, II, p. 243, Coreus.

Original Description-- "Fuscous; thighs spinous beneath; margin of the abdomen black with five white lineolar spots; head mutic.

"Inhabits Missouri Territory.

"Body deep blackish-brown: eyes rufous, a moveable black pupil: stemmata sanguineous: antennae blackish, robust, two terminal joints rufous, equal: rostellum pale, tip black, thorax punctured, gradually elevated behind, attenuated before, anterior termination as wide as the base of the head, anterior lateral edge slightly dentate, posterior angles rounded: scutellum of the male tinged with rufous: thighs, a

Genus Euthochtha Mayr
(Pl. I, figs. 1, 1A)

Van Duzee in his Catalogue of Hemiptera of American (1917) lists one species as occurring in America north of Mexico. This species occurs in Kansas.

Euthochtha galeator (Fabricius)

Fabricius, Johann Christian: Systema Rhyngotorum Secundum Ordines, Genera, Species, etc., p. 191, 1803, Coreus.

Original description (translated by the writer):

"Thorax serrated fuscous, antennae pale: posterior femora elevated and toothed.

"Inhabits the Carolinas. Type specimen in the Museum Dom. Bosc.

"Size and form of C. marginati. Antennae pale, last segment fuscous. Head small acute at both sides of the base of the antennae. Thorax fuscous, the posterior margin serrated and elevated, feebly spinose. Elytra punctated. The underwings slightly yellow. Legs fuscous, posterior femora thickened, curved, toothed."

Size: Length, 15--17 mm.; width, 5--6.5 mm.

Structural characteristics: Body elongate-oval, depressed above, subconvex beneath. Head short subquad-rangular, broader across the eyes than the apex of pronotum; antenniferous tubercles prominent, extending much beyond the tylus which is deflexed, armed on the outside with a small blunt spine. Antennae slender, the basal segment twice as long as the head, the second and third more slender, the second longer than the third, the fourth stouter, slightly shorter than the third. Rostrum reaches the middle coxae. Pronotum with front angles produced as a short tooth, basal margin truncate, wider than the scutellum, lateral angles obtuse. Connexivum exposed. Membrane reaches the tip of the abdomen. Femora all armed beneath, the hind ones of male curved and swollen. Tibiae straight.

Color: Dull yellow or reddish-brown above, thickly marked with fuscous punctures. Antennae reddish-brown or dull yellow, the terminal joint darker. Connexivum reddish-brown, the margins of segments fuscous and marked with yellow. Under surface yellow or reddish-brown sprinkled with fuscous dots. Legs the same except the hind tibiae are paler, immaculate. Pronotum finely and irregularly punctate. Scutellum finely transversely rugose. Elytra punctate, each puncture having a small yellowish scale.

Tribe Chariesterini (Stal)

This tribe is represented in North America north of Mexico by one genus, Chariesterus Laporte. Van Duzee (1917) lists three species of this genus as occurring in North America north of Mexico, but since then Fracker (1919) has described a new species. Of these four species one occurs in Kansas.

Chariesterus antennator (Fabricius)
(Pl. II, figs. 4, 4A)

Fabricius, Johann Christian: *Systema Rhyngotorum Secundum Ordines, Genera, Species, etc.*, p. 198, 1803, Coreus.

Original description (translated by the writer):

"Thorax obscurely serrated, the next to the last segment of the antennae with a dilated compressed membrane.

"Inhabits the Carolinas. Type specimen in Museum Dom. Bosc.

"Medium sized. Antennae dark; second segment scabrous, third dilated and membranous, the last claviform. Head, thorax and elytra dark fuscous. Margins of thorax very serrated. Abdomen reddish."

Tribe Chelinidini Blatchley

Blatchley (Heteroptera of Eastern North America, 1926) erected this tribe for the genus Chelinidea. There are two species of this genus found in North America north of Mexico. One of them occurs in Kansas.

Chelinidae vittiger Uhler
(Pl. II, figs. 4, 4A)

Uhler, Phillip Reese: Transactions of the American Entomological Society, Vol. II, p. 366, 1863.

Size: Length, 13-15 mm.; width across pronotum, 5--5.5 mm.

Color: Clay-yellow, glabrous; head and antennae brownish-fuscous, head with a broad median yellow stripe; anterior and posterior margins of pronotum, scutellum and membrane, fuscous-brown or sometimes darker; elytra dull yellow, with dense fuscous punctures, basal half of costal margin and veins yellow; connexivum yellow, immaculate; beneath uniform yellow. The color of the elytra varies considerably. McAtee (1919) has made two sub-species and a variety of each of this species based upon the color.

Structural characteristics: Body oblong-oval, depressed above, subconvex beneath, a plump bodied species.

Head subcylindrical, porrect, three-fourths or more the length of pronotum, narrowed and pushed forward in front of bases of antennae; jugae shorter than tylus which is strongly deflexed between them; antenniferous tubercles small, widely separated. Antennae stout, as long as head, pronotum and scutellum combined; basal segment stout, curved half the length of head, second and third segments three sided, subequal, fourth shortest, fusiform. Pronotum densely punctate, the humeral angles lower than the intervening parts, apex one-half the greatest width. Scutellum transversely wrinkled. Elytra rather closely and evenly punctate. Front and middle femora each with two or three short spines on the inner lower margins near apex, and one or two on the outer. Tibiae straight, three-sided.

This species has not been reported from Kansas before.

Distribution: It has been taken in the western half and the eastern third of the state as shown by the following map.

Tribe Coreini (Stal)

Nine genera of this tribe occur in North America north of Mexico. Two of these genera are represented in Kansas.

Key to the Kansas Genera of Coreini

- A. Head very broad, subdepressed; articulation of antennae cephalic, guarded beneath by an expanded plate of the gena; scent gland orifices without button-like prominence at the anterior margin.....Catorhintha.
- AA. Head narrower and more convex; articulation of antennae laterocephalic, not guarded beneath by an expanded plate of the gena; scent gland orifices with a round button-like prominence at the anterior margin..Anasa.

Genus Catorhintha Stal

Van Duzee lists four species of this genus as occurring in North America north of Mexico. Fracker (1923) described a new species. He also places Ficana apicalis Dallas in this genus. Of these six species but one occurs in Kansas.

Catorhintha mendica Stal
(Pl. II, figs. 6, 6A)

Stal, Carl: Enumeratio Hemipterorum, Vol. I, p. 187, 1870.

Original description (translated by the writer):

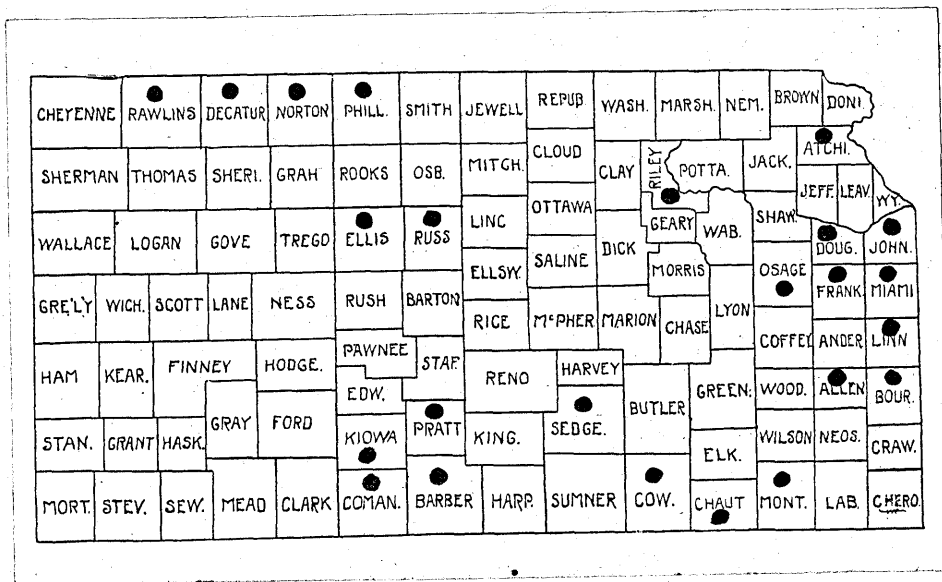
"Yellowish-gray, dorsal surface dotted with fuscous; antennae, rostrum, except apex of first segment, spines of the antenniferous tubercle and the dorsal side of the abdomen, black; ventral margin of connexivum spotted with black, three black spots on sides of pectoris, and a series of six black spots on each side of venter: underside of legs sprinkled with black; apex of third segment and occasionally the apex of fourth segment of the antennae yellowish-white or pale yellow; two pale yellow spots on dorsal surface of abdomen, yellow spots or bars on connexivum, posterior-lateral margin of thorax, and apex of scutellum pale yellow, two small

yellow spots on the corium, one median behind the disc, the other faded on the margin of the apex.

"Most like Catorhintha guttula (Fabr.), differing only in being larger, under margin black spotted, and underside of legs densely sprinkled with black.

"Countries: Texas, Mexico."

Distribution: It has been collected, as shown by the following map, in nearly every part of Kansas.



Genus Anasa Amyot and Serville

Seven species of *Anasa* are known from North America north of Mexico. Three of these occur in Kansas.

Key to the species of Anasa

- A. Head armed with a long spine on each side, one-third as long as first antennal segment.....armigera.
- AA. Head not armed with spine.
 - B. Head marked with two black or black-dotted longitudinal lines.....tristis.
 - BB. Head without longitudinal black lines....repetita.

Anasa tristis (De Geer)
(Pl. II, figs. 7, 7A)

De Geer, Carl: Memoires pour servir a L'histoire
des Insectes, Vol. III, p. 340, pl. 34, fig. 20, 1773, Cimex.

Original description (translated by the writer):

"That bug found all over Pennsylvania by M. Acrelius, is the size of an ox-fly; the body elongated, the abdomen concave on the upper side but very convex on the under side; the antennae which are half as long as the body, are four segmented, the first and last segments are longer than the others. The pronotum is triangular with the lateral angles obtuse.

"The head, the pronotum, and the elytra are obscure brown above, garnished with a great number of glossy black dots; but the membranous portion of the elytra is nearly black and the wings are also black. Beneath the body is gray cinnamon, a little russet, uniformly covered with little concave points. The sides of the prothorax are bordered with gray. The antennae are brownish-black; the legs brown with black dots; the top of the abdomen is all black. The sober and obscure colors of this bug gives it an airof sadness."

This is the "squash-bug" of literature, and as it is the commonest, most injurious and the best known species

Anasa repetita Heidemann
(Pl. II, figs. 8, 8A)

Heidemann, Otto: Proceedings of the Entomological Society of Washington (D. C.), Vol. VII, p. 11, 1905.

Original description: "Elongate-oval, uniformly brown or light brown. Upper surface of body, and breast, with irregular rows of dark punctures; from each puncture arises a short, stiff, golden bristle; abdomen transversely wrinkled, the punctures somewhat obsolete, with finer and longer hairs which are more closely placed on the apex of the abdomen. Head without a spine or tubercle near the antennae; ocelli amber-colored, blackish-edged behind; antennae moderately long and finely pilose; basal joint one-third longer than the head, gradually curved, brown, with a black line exteriorly and a few black dots; the black line even reaching the antenniferous tubercle; second joint a little longer than the first; the third nearly equal in length with the second, both joints about about half as thick as the basal joint, black, narrowly yellowish-white at base; terminal joint shorter, fusiform and orange-colored. Rostrum reaching the middle coxae, light brown, black at tip. Thorax broader than long; the disk feebly convex, in the middle a longitudinal narrow, smooth whitish line; lateral margins slightly sinuate anteriorly, and obtusely rounded posteriorly near the

posteriorly near the humeri; the anterior margin less than half as broad as the posterior; the latter considerably depressed and straight, the transverse raised line above the margin well defined. Scutellum wrinkled; at the basal corners a triangular, black spot and also one at the tip. The disk of the corium has a few dark speckles, formed by the more or less confluent punctures. The membrane brownish and sprinkled with some large, black dots, the base darker. The connexivum is edged with white and black lines and has on the incisure broad, whitish, transverse bands. Abdomen much rounded, luteous, on the sides of the segments a few black spots; also one or two near the base of the coxae. Feet yellowish white and dotted with large, black spots.

"The genital segment of the male is quite remarkable; it is a little longer than broad, with a transverse, shallow line before the middle, the base convexly rounded and sloping abruptly towards the apex, which is truncate, very feebly indented in the middle, with the corners decidedly hump-like in form.

"Length, female 15mm., male 12 mm.; width across the thorax, female 6 mm., male 5 mm.

"Type---No. 8217, U. S. National Museum."

This species has not been reported from Kansas before.

It has been collected in Douglas and Riley counties.

Anasa armigera (Say)
(Pl. II, figs. 5, 5A)

Say, Thomas: Journal of the Academy of Natural Sciences of Philadelphia, Vol. IV, p. 319, 1825; Complete Writings of Thomas Say on the Entomology of North America, Vol. II, p. 243, Coreus.

Original description: "Brown, feet white, spotted with black: head spinous above the antennae; margin of the tergum black; with five white lineolar spots.

"Inhabits Missouri territory.

"Body brown above, beneath pale: eyes prominent rufous: stemmata sanguineous; above the origin of each antenna, an elevated, prominent acute spine, half as long as the basal joint of the antenna: antennae, first joint white, spotted with black, second and third black, white at base and tip, terminal joint rufous: thorax punctured, elevated behind, descending almost vertically and attenuating to the head; anterior lateral edge dentate, posterior angles dilated and terminated in an angle, from whence the posterior margin descends sinuously and obliquely, terminating in a short acute spine each side of the base: base transversely rectilinear; scutellum with three black spots at base: hemelytra, a white oblique line in the middle on the membranaceous por-

tion; tip blackish: feet white, spotted with black; thighs armed at the tip beneath with two short acute spines: tergum sanguineous, base, tip and margin black, the latter with five oblique white lines: venter pale, spotted with black.

"Length of the female eleven-twentieths of an inch.

"I have not seen the male of this species, it bears a general resemblance to C. galeatus Fabr. and is about equal to that species in magnitude, but it may be at once distinguished by the white transverse line at the base of the membranaceous portion of the hemelytra."

The length of the specimens that the writer has examined varies from 13 to 17 mm.; width across the pronotum, 4.5 to 6.5 mm.

Distribution: It has been taken in Douglas, Leavenworth and Riley counties.

Subfamily Pseudophloeinae (Stal)

There are two genera of this subfamily in America north of Mexico, each of which has two species. One species of one genus occurs in Kansas.

Coriomeris humilis (Uhler)
(Pl. III, figs. 1, 1A)

Uhler, Philip Reese: Notices of the Hemiptera of the Western Territories of the United States, Chiefly from the surveys of Dr. F. V. Hayden. (in F. V. Hayden: Preliminary Report of the United States Geological Survey of Montana and Portions of Adjacent Territories for 1871, p. 403, 1872), Dasycoris.

Original description: "Closely resembling D. pilicornis, Burm., of Europe; but rather more slender; the head longer and the antennae more slender. Fusco-cinereous, or pale fulvo-griseous, hispid; the head pale beneath; on the sides is a dark brown stripe running from the antennae to the base, tylus carinately elevated. Antennae having the second joint distinctly shorter than the third; the fourth pale fuscous, about equal to the third joint in length; antenniferous spines very short, small. Rostrum reaching to the intermediate coxae; the

tip piceous. Pronotum remotely punctured, beset with numerous granular processes, densely clothed with gray pubescence; the lateral margins, with their close-set, short, teeth-like processes, whitish; humeral angles with an acute, fuscous tooth, stouter and not so long as that in D. pilicornis. Pectus pale clay-yellow, or even whitish, closely, coarsely punctured, granulated, and with whitish, somewhat matted pubescence. Legs pale clay-yellow; the femora granulated, pubescent, mottled with brown; tibiae darker at tip; the tarsi somewhat embrowned, and the nails piceous. Mesosternum blackish. Scutellum coarsely punctured, covered with dense, whitish pubescence; the tip white. Hemelytra beset with coarse, brown granules and short whitish pubescence; the embolium grooved, flecked with brown; membrane pale, the nervures interruptedly brown. Connexivum with pale, transverse lines, between which are fuscous clouds. Venter minutely wrinkled, closely punctured; the pubescence minute, whitish; the basal segments having several brown points each side, and usually with a series on each side of all the segments; the lateral margins interruptedly infuscated.

"The posterior femora usually have two spurs beneath, near the tip, and two or three small teeth close to the tip. Sometimes the two longitudinal nervures of the corium are interruptedly fuscous.

"Length to tip of venter, 8 1/2--9 mm. Width

across the humeri, 2-2 1/4 mm."

The writer has seen but two specimens of this species which were taken in Kansas, a male and a female from Gove county.

Subfamily Alydinae (Am. & Serv.)

This subfamily is given family rank by Parshley (1923) and Blatchley (1926). Blatchley also changed the name of the family to Coriscidae (Blatchley, W. S.: Heteroptera of Eastern North America, p. 256). There are three tribes in this subfamily in North America north of Mexico. Tribe I, Micrellytrini (Stal) has four genera in America north of Mexico, one of which, Darmistus, is represented in Kansas. Tribe III, Alydini, is represented in America north of Mexico by six genera, four of which, Megalotomus, Alydus, Tollius, and Stachyocnemus, occur in Kansas. Tribe II, Leptocorisini, is not represented in Kansas.

Key to the Kansas Genera of Alydinae

- A. Posterior femora not armed with spines...Darmistus.
- AA. Posterior femora armed beneath with a row of spines.
 - B. Antennae with first segment surpassing apex of head; scent gland orifices present.
 - C. Antennae with first segment longer than second.....Megalotomus.
 - CC. Antennae with first segment shorter than the second.....Alydus.
 - BB. Antennae with first segment not surpassing apex of head; scent gland orifices obsolete.....
 - C. Posterior tibiae unarmed.....Tollius.
 - CC. Posterior tibiae armed with two rows of strong spines.....Stachyocnemus.

Genus Darmistus Stal

This genus is represented in North America north of Mexico by one species. This one occurs in Kansas.

Darmistus subvittatus Stal
(Pl. III, fig. 11)

Stal, Carl: Oversigt af Kongliga Vetenskaps-Akademien's Forhandlingar, Vol. XVI, p. 469, 1859.

Original description (translated by the writer):

"Pale yellowish-grey, dorsal surface with pectoris distinctly punctated, two fuscous lines on the head and four faint ones on the thorax, the hemelytra distinctly punctated with fuscous; black lines on the ventral surface of head, and a black medio-ventral line on the pectoris.

"Male 9 mm. long and 2 mm. wide.

"Texas".

This is the first time that this species has been reported as occurring in Kansas.

Distribution: This species has been taken only in Decatur county.

Genus Megalotomus (Say)

This genus is represented in North America north of Mexico by one species. This one occurs in Kansas.

Megalotomus 5-spinosus (Say)
(Pl. III, figs. 10, 10A)

Say, Thomas: Journal of the Academy of Natural Sciences of Philadelphia, Vol. IV, p. 323, 1824; Complete Writings of Thomas Say on the Entomology of North America, Vol. II, p. 247, Lygaeus.

Original description: "Obscure rufous: posterior thighs five-spined; tergum red, margin lineate with black.

"Inhabits the United States.

"Body dull rufous, minutely and densely punctured; head triangular: stemmata sanguineous: antennae, second and third joints black at their extreme tip, fourth joint dusky, pale at base: rostellum pale, black at tip; setae black: thorax obsoletely indented longitudinally in the middle and transversely before the middle; posterior angles salient, acute, blackish at tip: scutel pale at tip: feet pale rufous, whitish at base: posterior thighs more

robust, rufous at tip, five spined beneath: pectus,
postpectus, and head beneath, black in the middle: tergum
red: margin with about four pale spots, and black lineolar
edges to its segments.

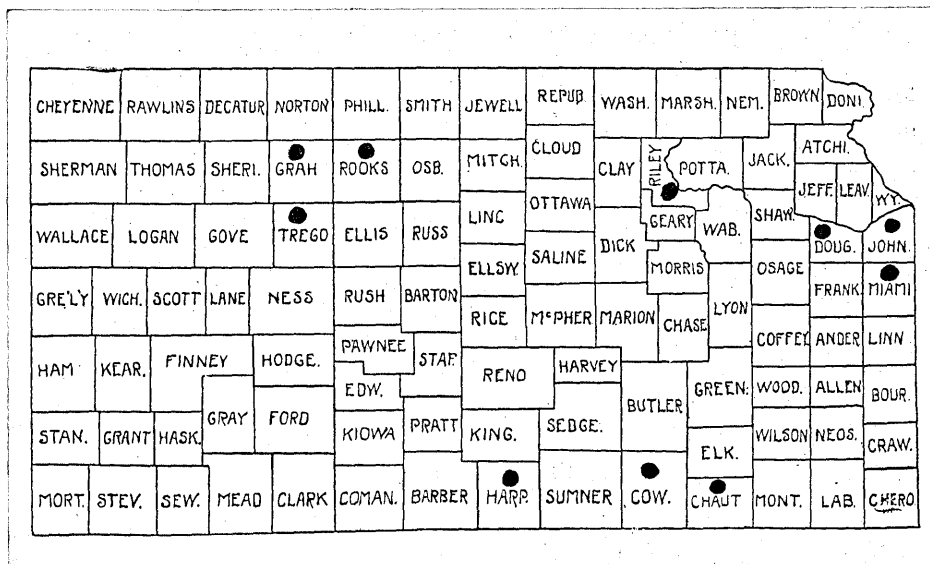
"Length of body more than half an inch."

Claspers of the male forked. The outer lobes the longer.

Length, 14-16 mm.; width across the pronotum
3-3.7 mm.

Has not been reported before this as occurring in Kansas.

Distribution: Shown by the following map.



Genus Alydus Fabricius

Van Duzee in his catalogue lists six species of the genus as occurring in North America north of Mexico. Fracker (1918) described a new species. Of these seven species five are found in Kansas.

Key to the Kansas species of Alydus (after Fracker)

- A. Pronotum with lateral angles blunt, and sides and sides and lateral margins not distinctly paler than the disc.
- B. Claspers of the male with caudo-mesal margins subparallel, caudal aspect narrow; female of pluto with lateral plates of hypopygium terminating in a tumid finger-like process, sixth ventral segment with a distinct median carina.
- C. Antennae with fourth segment shorter than second and third together, third subequal to second; body black, not densely pilose.....pluto.
- CC. Antennae with fourth segment more than one-third longer than second and third together, third shorter than second; body variegated with fuscous, densely

pilose.....tomentosus.

BB. Claspers of male not with caudo-mesal margins parallel; lateral plates of female hypopygium flat, not tumid at tip, sixth ventral segment with carina short, indistinct or wanting.

C. Claspers of male twisted, not arcuate; lateral plates of female hypopygium acute at apex; pronotum usually black; membrane infusate....eurinus.

CC. Claspers of male arcuate, divaricate at base and convergent at tip; lateral plates of female hypopygium broadly rounded at apex; pronotum usually with posterior two-thirds fulvous; membrane often spotted....conspersus.

AA. Pronotum with lateral angles acute and lateral margins pale; claspers of male with lateral expansions and acuminate tip; lateral plates of female hypopygium bluntly rounded, approximate at apex.....pilosulus.

Alydus pluto Uhler

(Pl. III, figs. 12, 12A)

Uhler, Philip Reese: Notice of the Hemiptera of the Western Territories of the United States, Chiefly from the Surveys of Dr. F. V. Hayden. (in F. V. Hayden: Preliminary Report of the United States Geological Survey of Montana and Portions of Adjacent Territories for 1871), p. 403, 1872.

Original description: "Intensely black, much more robust than A. eurinus, Say. Head more robust, minutely scabrous, pubescent; the constricted portion of collum shorter; eyes and ocelli prominent; the intra-orbital surface longitudinally impressed, almost to the line of the antennae. Sides and under side of the head minutely granulated, punctured, and wrinkled. Antennae either piceous black, or black, with the bases of the first, second and third joints pale piceous; the under side of base of the first whitish. Rostrum black, reaching to the intermediate coxae. Pronotum very moderately convex, a little pubescent, coarsely, deeply punctured; the lateral margins slenderly carinated; the carina obsolete at the anterior angles, but considerably elevated on the moderately prominent posterior angles, but considerably elevated on the humeri. Callosities, broad, large,

bald, minutely granulated each side, with two impressed points behind their middle. Propleurae coarsely, confluent, deeply punctured, except anteriorly, where the punctures are fine; meso- and meta pleurae rather coarsely, irregularly granulated, coarsely punctured behind and below. Legs deep black, pubescent, or with the anterior and intermediate tibiae pale piceous on the middle; posterior femora with five curved spurs, from behind the middle to near the tip; at tip, with two or three close set, very small teeth; tarsi pale piceous on the base of the first joint. Scutellum coarsely, remotely punctured. Corium less coarsely, rather remotely punctured; embolium smooth, minutely, sparsely, obsoletely punctured, minutely pubescent; membrane brownish-black, with long, close, very numerous nervures. Tergum red as far as the base of the antepunultimate segment, or only a little red on two or three of the basal segments; venter deep black, shining, immaculate, very minutely shagreened, pubescent at tip.

"Length to venter, 12-13 mm.; width across the humeri, 3 mm.

"Inhabits Colorado; Ross Fork, Idaho; Louisiana; and Kansas. The spines of the posterior femora vary in number from three to six; this variation occasionally occurs on the opposite side of the same specimen.

There seem to be about twenty nervures to the membrane, of which two or three are usually forked".

Distribution: This species has been collected in Clark, Norton and McPherson counties.

Alydus eurinus (Say)

(Pl. III, figs. 7, 7A)

Say, Thomas: The Journal of the Academy of Natural Sciences of Philadelphia, Vol. IV, p. 324; The Complete Writings of Thomas Say on the Entomology of North America, Vol. II, p. 247, Lygaeus.

Original description: "Blackish, hairy, punctured; tergum black, disk rufous, margin with four yellowish spots; posterior thighs three-spined.

"Inhabits Missouri and Arkansas.

"Body blackish, hairy, punctured: head triangular: eyes prominent: antennae, second and third joints dull testaceous, blackish at their tips: thorax. densely punctured, mutic: hemelytra black-brown: feet black: tibiae and first joint of the tarsi, dull testaceous, with black tips: posterior thighs three-spined beneath, and one or two smaller spines at tip: abdomen, reflexed margin with four yellowish spots: tergum rufous on the basal disk.

"Length about half an inch.

"The body of this insect is long and narrow, the diameter of the head which passes through the eyes is but little shorter than the breadth of the thorax."

Size: Length, 11-15 mm.; width, 2.3-3 mm.

Color: Color above variable from nearly wholly black to largely fuscous-brown; connexivum black, each segment with a small orange -yellow spot near front angle; antennae fuscous-brown, basal segment and tips of second and third segments darker; tibiae fuscous-brown, darker near apex.

Structural characteristics: Head finely and densely punctate; antennae with third segment a little shorter than the second, both together but little longer than the fourth. Pronotum with disc subconvex, but little narrowed in front, deeply and densely punctate, clothed with numerous rather coarse erect black or brown hairs, as is the head. Scutellum slightly convex, coarsely but not densely punctate. Elytra finely and sparsely punctate. Abdomen slightly dilated at middle, the connexivum rarely narrowly exposed.

This species is easily confused with Alydus pluto Uhler if examined but superficially examined, but the genitalia of the two species are very distinct.

Distribution: Has been taken in Douglas, Riley and Miami counties.

Alydus tomentosus Fracker

Fracker, S. B.: The Annals of the Entomological Society of America, Vol. XI, No. 3, p. 267, 1918.

Original description: "Color black, mottled with dark brown; body and legs densely covered with long, fine, black and white setae intermixed; form more robust than in eurinus and not so large as in pluto. Head black, marked on each side with a longitudinal flavescent antocular line, slightly broken at tip of antenniferous tubercle and extending nearly to apex of jugum; also a short, pale fuscous vitta caudo-ventrad of each eye. (One specimen in addition shows a small fuscous spot behind the ocelli). Antennae fuscous, first, second and third segments black toward apex; fourth segment more than one-third longer than two preceding together, first shorter than second, subequal to third, and attaining apex of head. Rostrum piceous, paler at incisions, first segment longest, slightly longer than second and subequal to two apical ones together; fourth one-half longer than third.

"Prontoum densely punctate, black, mottled with fuscous on posterior half of the disc and on the sides, sometime with an indication of short mediodorsal and lateral marginal fulvous lines near anterior margin. Scutellum

black, flavescent at tip. Corium castaneous, mottled with flavescent; membrane infusate. Thorax and abdomen black beneath, densely hairy, sides of thorax rugose and deeply punctate. Scent gland orifices well developed. Margins of abdomen minutely flavo-maculate. Legs with the coxae, trochanters, and tibiae castaneous, the latter black at tip; femora black, armed with three or four long spines. Claspers of the male with mesal margins subparallel, caudal surfaces slightly expanded laterally near tip.

"Size male, 10 x 2.6 mm.

"Holotype: male, from Las Animas, Colorado; both in the Ball Collection."

This species has not been reported from Kansas before.

Distribution: Has been taken in Norton county.

Alydus conspersus Montandon

Montandon, A. L.: Proceedings of the United States National Museum, Vol. XVI, p. 49, 1893.

Original description: "Grayish above, sparsely hairy on the anterior part of the pronotum; head black, anterior margin and a longitudinal spot on the middle of the anterior part of pronotum black, the middle of this black spot sometimes with a very small longitudinal pale line. The posterior part of the pronotum and the elytra grayish with fine punctures, with castaneous and numerous irregular black spots. Membrane pale vitreous with darkish nervures and numerous round spots irregularly scattered on the surface; the greater part of the back of the abdomen red, base and extremity black. Connexivum black with a pale spot at the base of each segment. Body beneath black with metallic bronze reflections, especially on the abdomen. Antenna dark brown, with the basal two-thirds of the second, and third joints pale. Legs black, the tibiae brownish, with the base and extremity darkish. First joint of the tarsi brownish, with the base and extremity black. Length 10 to 11mm."

This species is distinguished from eurinus by the much sparser and finer punctuation of the pronotum, and by the fact that each one of these finer and sparser

punctures bears a minute appressed yellow hair.

This species has not before been reported as occurring in Kansas.

Distribution: It has been taken in Rawlins and Riley counties.

Alydus pilosulus Herrich-Schaeffer.
(Pl. III, figs. 5, 5A)

Herrich-Schaeffer, Gottlieb August Wilhelm:

Die Wanzenartigen Insecten, Vol. VIII, p. 101, fig.
870, 1848.

Original description: (translated by the writer):

"An ochre-fuscous Alydus, pilose; first to third segments of antennae, tibiae and tarsi testaceous, apex fuscous.

"Size and form similar to A. calcaratus, but more slender; the brownish ochre-yellow ground color appears as three longitudinal lines on the anterior part of head as side stripes, and on the anterior black part of prothorax as a median line. Underside of head, meta-sternum, and the tibiae near their ends, fresh green.

"Male from North America; from Sturm."

Size: Length, 10-14 mm.; width across humeri, 2-2.7 mm.

Color: Above usually grayish-yellow, the head fuscous, with tylus and a line on each side yellow, a narrow stripe below eye and the edge of side margins of pronotum whitish; apical third of pronotum, tips of first three segments of antennae, tips of tibiae and tarsi, fuscous or black; terminal segment of antennae dusky; mem-

Genus Tollius Stal

Van Duzee in his catalogue lists two species of this genus as occurring in North America north of Mexico. One of these species is represented in Kansas.

Tollius curtulus (Stal)

Stal, Carl: Kongliga Svenska Fregattens Eugenies resa omkring Jorden, Insekter, p. 234, 1859, Alydus.

Description

Size: length, 9.5 to 12 mm.; width, 2.2 to 3.5 mm.

Color: Above pale yellow marked with fuscous. Head fuscous with a median and two lateral lines reddish-yellow; antennae pale, the first and fourth segments darker. The pronotum dull yellow sprinkled with fuscous dots and punctures; disc marked with a pair of fuscous, slightly divergent lines. The scutellum fuscous, the tip pale. Elytra with numerous small fuscous blotches; membrane pale mottled with pale fuscous blotches. Beneath with sides fuscous and middle reddish brown. Femora mottled, sometimes with yellow rings.

Structural characteristics: An elongate-oblong species. Head elongate-triangular, almost as long as the

pronotum. First segment of antennae shorter than the head, second and fourth subequal, third slightly shorter. Pronotum subquadrangular, slightly longer than wide, lateral margins straight, hind margins subtruncate, not toothed. Elytra as wide as the abdomen, the connexivum not exposed; membrane reaching the tip of the abdomen. Front and middle coxae and all the tibiae unarmed; hind femora moderately swollen and with a row of stout spines beneath on the outer margin. The scent-gland orifices obsolete.

This species has not been reported from Kansas before.

Distribution: The writer has seen but one specimen from Kansas, and that one was taken in Wallace county.

Genus Stachyocnemus Stal

One species of this genus occurs in North America north of Mexico. This one is found in Kansas.

Stachyocnemus apicalis (Dallas)
(Pl. III, figs. 6, 6A)

Dallas, William S.: List of the Specimens of Hemipterous Insects in the British Museum, Vol. II, p. 479, 1852, Alydus.

Description

Size: Length, 7.5 -8 mm.; width across humeri, 2-2.5 mm.

Color: General color yellowish-grey or black; pronotum with a large brown or piceous triangle on base, extending forward to apex by a narrow median line; connexivum piceous, the upper front angle of each segment grayish yellow; antennae grayish-brown, the fourth segment darker; under surface and femora varying from pale grayish-yellow sprinkled with fuscous dots to piceous.

Structural characteristics: Scent-gland orifices obsolete; the shape of the male genital capsule conceals the claspers; head triangular, much narrowed and produced

in front of antennae; antennae with first segment widened to tip, second and third subequal, slender, fourth longer and thicker than the others. Pronotum as wide at base as long, with posterior margin bearing a mesal tooth. Hemelytra reaching to or slightly surpassing the tip of abdomen in length. Anterior and intermediate femora and tibiae slender and unarmed; posterior femora thickened, attaining apex of abdomen and armed beneath with two rows of acute teeth; posterior tibiae armed with two rows of strong spines.

This is the first time that this species has been recorded as occurring in Kansas.

Distribution: Has been taken in Clark and Morton counties.

Subfamily Corizinae (Mayr)

This subfamily is represented in North America north of Mexico by three tribes. Representatives of all three of these tribes occur in Kansas.

Key to the tribes of subfamily Corizinae.

- A. Anterior angles of prothorax projecting forward in
 an acute spine.....Harmostini.
- AA. Anterior angles of prothorax obtuse or rounded.
 - B. Body over 10 mm. long; hemelytra opaque.....
 Leptocorini.
 - BB. Body not over 9 mm. long; hemelytra hyaline....
 Corizini.

Tribe Harmostini (Stal)

Van Duzee lists three genera of this tribe as occurring in North America north of Mexico. Representatives of two of these genera occur in Kansas.

Key to the Kansas genera of Harmostini

- A. Abdomen extended laterally beyond the sides of the abdomen; pronotum with a distinct median impression..... Aufeius.
- AA. Abdomen not extended laterally beyond the sides of the abdomen; pronotum without a distinct median impressionHarmostes.

Genus Harmostes Burmeister

This genus is represented in North America north of Mexico by six species. Two of these occur in Kansas.

Key to the Kansas species of Harmostes

- A. Basal segment of antenna scarcely or slightly surpassing apex of head; second and third segments subequal.....fraterculus.
- AA. Basal segment of antenna surpassing the apex of head about one-half its length; second segment shorter than the third.....reflexulus.

Harmostes reflexulus (Say)

(Pl. III, figs. 2, 2A)

Say, Thomas: Descriptions of new species of Heteropterous Hemiptera of North America. New Harmony, Ind., p. 10, 1832; Transactions of the New York State Agricultural Society, Vol. XVII, p. 768, 1857 (reprinted by Fitch); The Complete Writings of Thomas Say on the Entomology of North America, Vol. I, p. 323, Syromastes.

Original description: "Body reddish-brown, with rather large, confluent punctures; head not extending more than half the length of the basal joint of the antennae, obviously carinate between the antennae, tubercles each side of the antennae; acute: antennae, first joint robust, rough, much narrowed; second joint shorter than the third; terminal joint half as long as the third: thorax, lateral margins a little reflected, the edge concavely arcuated; posterior angles rounded; anterior angles prominent, acute; scutel narrowed before the tip; hemelytra, corium yellowish, rufous near the scutel; nervures very distinct; lateral edges a little reflected; membrane hyaline: beneath greenish-yellow; feet pale rufous; posterior thighs dilated, spinous beneath.

"Length one-fourth of an inch.

Harmostes fraterculus (Say)

Say, Thomas: Descriptions of new species of Heteropterous Hemiptera of North America. New Harmony, Ind., p. 10, 1832; Transactions of the New York State Agricultural Society, Vol. XVII, p. 768, 1857 (reprinted by Fitch): The Complete Writings of Thomas Say on the Entomology of North America, Vol. I, p. 324, Syromastes.

Original description: "Anterior point of the head extending nearly to the tip of the first joint of the antennae.

"Inhabits Georgia and Indiana.

"Closely resembles the preceding species (H. reflexulus), but is smaller; the anterior tip of the head extends nearly or quite to the tip of the first joint of the antennae; the lateral margin of the corium is very distinctly punctured with black; the membrane is marked with a longitudinal obsolete brown line and small points; the general color is darker; the tergum is sanguineous, black at base.

"Length less than one-fourth of an inch.

"A small specimen was sent to me by Mr. Oemler, from the vicinity of Savannah, and I have obtained the two sexes in Indiana."

This species has not been reported from Kansas before.

Distribution: Has been taken in Douglas county.

Genus Aufeius Stal

This genus is represented in North America north of Mexico by one species. This one occurs in Kansas.

Aufeius impressicollis Stal
(Pl. III, figs. 8, 8A)

Stal, Carl: Enumeratio Hemipterorum, Vol. I,
p. 222, 1870.

Original description (translated by the writer):

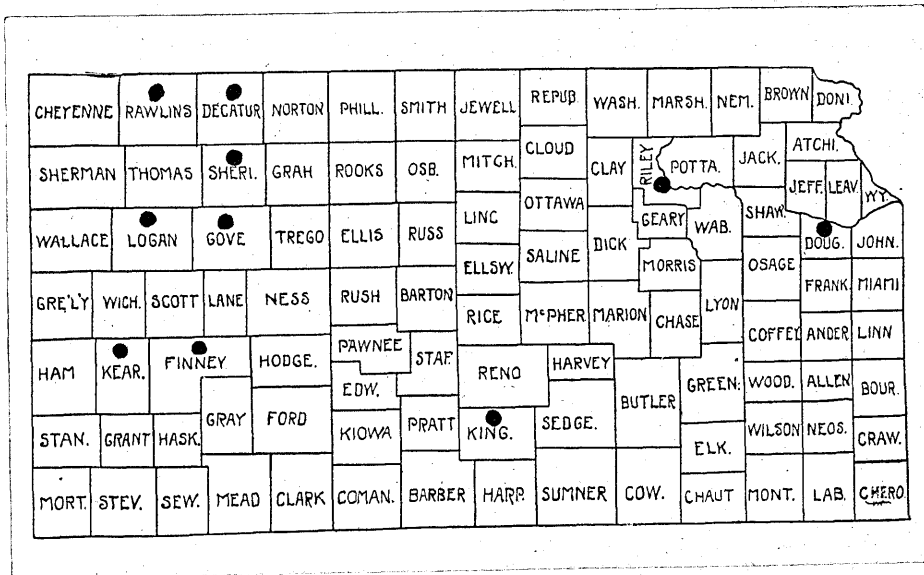
"Pale-yellowish-gray, sprinkled with fuscous, apical segment of antennae, and disc of mesosternum fuscous or black. Male. Female. 5-6 mm. long; width of thorax 1 1/2 to 2 mm.

"Habitat: Mexico, Texas. (Mus. Holm.)

"First segment of antennae sparsely granulated, second and fourth segments equal in length, the third scarcely longer. Head without distinct punctures, sides granulated. Thorax distinctly punctated and sprinkled with fuscous, disc impressed on both sides with short red lines; anterior part depressed; lateral margin sinuate before the middle, minutely crenulated. Scutellum totally punctated. Hemelytra hyaline, membranous, veins opaque and elevated, frequently sprinkled with fuscous, exterior

veins of the corium granulated on both sides. Membrane transparent, immaculate. The underside occasionally sprinkled with minute fuscous and sides of pectus and venter supplied with densely fuscous sprinkled lines. Pectus distinctly punctated. Apex of abdomen of male narrowly truncate; of the female widely truncate, last ventral segment of the male with apex sinuate, in female produced to apex of abdomen, subrounded medially. Legs variegated fuscous."

Distribution: The following map shows where this species has been collected to date.



Tribe Corizini(Stal)

This tribe is represented in North America north of Mexico by one genus (Corizus Fallen). This genus is represented by 14 species. Five of these occur in Kansas.

Key to the Kansas Species of Corizus

- A. Transverse impression of pronotum ending in a loop..
.....viridicatus.
- AA. Transverse impression of pronotum not ending in a
loop.
 - B. Last segment of the abdomen short and broad, its
apex truncate in female, evenly rounded in
male.....hyalinus.
 - BB. Last segment of the abdomen distinctly longer,
its apex acute or rounded in female, obtusely
rounded in male.
 - C. Scutellum broad at tip, rounded.indentatus.
 - CC. Scutellum narrow at the tip and pointed.
 - D. Connexivum unspotted,.....lateralis.
 - DD. Connexivum spotted.....sidae.

Corizus hyalinus (Fabricius)
(Pl. III, figs. 3, 3A)

Fabricius, Johann Christian: Entomologica systematica emendata et aucta, secundum classes, ordines, genera, species, adjectis synonymis, locis, observationibus, Vol. IV, p. 168, 1794, Lygaeus.

Original description (translated by the writer):
"A black Lygaeus with margins of the thorax reddish; elytra hyaline with apex fuscous; hyaline punctures.

"Habitat: an island of America. Dr. Pflug.

"Small. Antennae black. Head black, vertex with reddish punctures. Thorax black, lateral margins reddish. Scutellum black, apex reddish. Elytra hyaline, apex fuscous with large hyaline punctures. Wings white. Body black beneath with red lines. Legs black."

Size: Length, 5.5-6.4 mm.

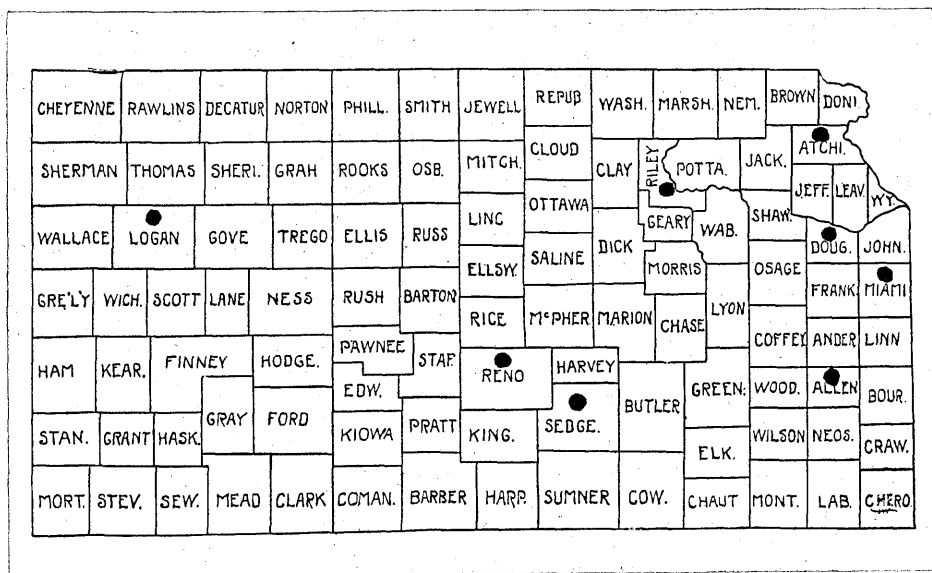
Color: Above yellow, red, or sometimes very dark, ornamented with darker markings; sternum black; transverse suture of pronotum prominent and black; connexivum not distinctly spotted.

Structural characteristics: Posterior lateral angles of metapleura produced into an acute rounded angle; scutellum narrow and acute apically, sides nearly straight;

transverse suture of pronotum prominent and black; wings extending much beyond the apex of the abdomen; last segment of the abdomen short, truncate in the female, evenly rounded in the male.

This species is cosmopolitan in distribution but has not been reported from Kansas before.

Distribution: The following map shows the counties in which it has been taken in Kansas.



Corizus viridicatus Uhler

Uhler, Philip Reese: Notices of the Hemiptera of the Western Territories of the United States, Chiefly from the Surveys of Dr. F. V. Hayden. (in F. V. Hayden: Preliminary Report of the United States Geological Survey of Montana and Portions of adjacent Territoris for 1871), p. 404, 1872.

Original description: "Slender, form of C.

truncatus Ramb. Pale green; front of the face rather blunt, the end of the tylus decurved; upper surface of the head with whitish, sericeous pubescence, scabrous, uneven, minutely punctured; the under side obsoletely wrinkled, finely pubescent. Antennae slender, clothed with remote long hairs; the basal joint extending beyond the tylus, freckled with dark brown, and usually with a short stripe on the under side; the apical joint rather slender, hardly longer than the preceding, more or less orange, at base paler; the second and third joints subequal, faintly streaked with brown both above and below. Rostrum reaching not quite to the posterior coxae; the middle line and the apical joint, excepting at its base, dark piceous. Face and cranium sometimes with a few small spots and streaks of brown or black on the middle and near the eyes.

Pronotum with long pubescence, coarsely punctured in irregular rows, the callosities forming a prominent ridge nearly across the entire width; antepectus and pleura uneven, a little less coarsely punctured; the meso- and metapleura uneven, a little more coarsely punctured; the posterior flap of the metapleura oblique truncated, with the upper angle rounded at tip, and, together with the acetublar caps, minutely punctured. Legs greenish-yellow, the femora rather robust, dotted with brown in rows, those of the upper, inward side sometimes confluent in a large patch; tibiae freckled with brown; at tip and the tips of each of the tarsal joints brownish, the nails piceous. Scutellum uneven, irregularly, somewhat coarsely punctured, the lateral edge recurved, the tips sunken, and its apex almost acute. Corium hyaline, rather finely punctured, the clavus sometimes blackish, or streaked with black; costal and base broadly coriaceous; the nervures usually with a few blackish points and streaks; membrane hyaline. Tergum black on the two or three basal segments, very coarsely punctured at base, and a little less coarsely on the disk; the apex with a black streak running from the penultimate segment to the tip, narrowing posteriorly; the antepanultimate segment often with two or three black dots on the disk; connexivum immaculate, minutely punctured.

Venter immaculate, minutely wrinkled and shagreened, finely pubescent. The punctuation of the service is sometimes brownish, either above, or both above and below.

"Length, 5-6 mm.; width across the humeri, 1 3/4 to 2 mm.

"This species is quite unlike any of the others thus far discovered in the United States, in slenderness and neatness of proportions, as well as the bright freshness of its colors when recent. It inhabits Colorado, Nebraska and Dakota."

This species is closely related to Corizus crassicornis Linnaeus. These two species are the only members of the genus Corizus that have the transverse impression on the pronotum ending in a loop, which have been described from North America north of Mexico. The smaller size of viridicatus distinguishes it from crassicornis.

This species has not been reported from Kansas before.

Distribution: It has been collected in Rawlins county.

Corizus sidae (Fabricius)
(Pl. III, figs. 4, 4A)

Fabricius, Johann Christian: Entomologia systematica emendata et aucta, secundum classes, ordines, genera, species, adjectis synonymis, locis, observationibus, Vol. IV, p. 169, 1794, Lygaeus.

Original description (translated by the writer):

"An ash-colored Lygaeus, sprinkled with fuscous; elytra hyaline, fuscous punctate; antennae clavate.

"Habitat: South America. Dr. Pflug.

"Small. Antennae pale, last segment stout, fuscous. Head, thorax, scutellum, body and legs ash-colored, sprinkled with fuscous. Elytra whitish hyaline with many, scattered fuscous punctures. Wings white, immaculate. Abdomen coal black above with an ash-colored band."

Size: Length of female, 5.6 to 6.2 mm.; male, 4.4 to 5.5 mm. Width of female, 2.9 to 3.1 mm.; male, 2 to 2.5 mm.

Color: General color varies from dark brown to gray or reddish yellow, usually rather thickly covered with very small brown or brightish red spots; dark line from head extends back on the pronotum, widens and fades

Corizus lateralis (Say)
(Pl. III, figs. 9, 9A)

Say, Thomas: Journal of the Academy of Natural Sciences of Philadelphia, Vol. IV, p. 320, 1825; Complete Writings of Thomas Say on the Entomology of North America, Vol. II, p. 245, Coreus.

Original description: "Pale reddish-brown, punctured: hemelytra with spotted nervures; feet pale, spotted.

"Body somewhat hairy, pale reddish-brown, with much dilated approximate punctures; head somewhat unequal, two obsolete impressed lines between the antennae, a blackish spot behind the eye: eyes dusky, pale before: antennae brownish, with sparse hairs; terminal joint as long as the preceding one, dilated, with cinereous pubescence: thorax with three obsolete dusky spots before, and an impunctured whitish line abbreviated before: scutel with a longitudinal, impunctured whitish line: hemelytra, nervures with black spots, interstitial spaces membranaceous; membranaceous tip immaculate, whitish: beneath with a distinct lateral red line; feet hairy, pale; thighs spotted with reddish-brown; pectus rufous: venter yellowish or rufous.

"Length more than one-fourth inch."

Corizus indentatus Hambleton

Hambleton, J. C. Annals of the Entomological Society of America, Vol. I, p. 139, 1908.

Original description: "Somewhat resembling scutatus but smaller and more hairy. Length of female, 4.5 to 6 mm., width 2 to 3 mm. Male, length 4.5 to 5 mm., width 2 to 2.5 mm.

"Head: Antenniferous tubercles small but rather sharp, very close to the eyes. Rostral lobes short and obscure. First segment of antennae reaches a little beyond the apex of the head. Upper surface rough and tubercular.

"Pronotum tubercular, especially in the region of the transverse suture which is often difficult to trace on this account. This suture forms a rather deep depression on either side of the median line. Scutellum rather broad and rounded at the apex, with borders slightly raised near the end which is not excavated.

"Abdomen but little wider than pronotum. Genitalia pretty much as in scutatus, though the entire sixth segment of the female is relatively shorter, and the ventral plate in the male is not so narrow at its middle point. Wings a little longer than abdomen. Whole insect covered with rather dense hair.

"Color, reddish-brown with no distinctive markings.

Tribe Leptocorini Van Duzee

Van Duzee lists two genera under this tribe in his catalogue. Representatives of both of these genera are found in Kansas.

Key to the Kansas genera of Leptocorini

- A. Bucculae less than half the length of the head;
 rostrum scarcely passing hind coxae.....
 Leptocoris.
- AA. Bucculae reaching the base of the head; rostrum
 to or beyond the second abdominal segment.....
 Jadera.

The pronotum is sometimes irregularly blotched with black, and its posterior border, with the base of the scutellum dark or almost black. Beneath the color is lighter, often tinged with yellow and minutely spotted with red. Sternum black, and often a dark brown line on either side of abdomen below, near the borders. The first and second segments of disk of abdomen are black, and the remaining four may be black also, but usually brown. The third has two small spots on the anterior margin and the fourth a rather large oval spot at its center; the fifth has two smaller oblique spots at its anterior margin and several small round spots below these; the sixth with the conventional yellow lateral stripes and the long black spot between them. Connexivum alternatin dark and light, sometimes one predominating and at others the other. The dark portions are ornamented with one or more small round spots of a lighter color. The legs are reddish yellow spotted with brown. Wing veins with a few brown spots. Membrane with a slight reddish tinge."

This is the first time this species has been recorded as having been collected in Kansas.

Distribution: Only one specimen has been taken and that in Riley county.

Genus Leptocoris Hahn

This genus is represented in North America north of Mexico by one species. This one is found in Kansas.

Leptocoris trivittatus (Say)

(Pl. II, figs. 1, 1A)

Say, Thomas: Journal of the Academy of Natural Sciences of Philadelphia, Vol. IV, p. 322, 1825; Complete Writings of Thomas Say on the Entomology of North America, Vol. II, p. 246, Lygaeus.

Original description: "Black, thorax trilineate, and hemelytra margined with rufous.

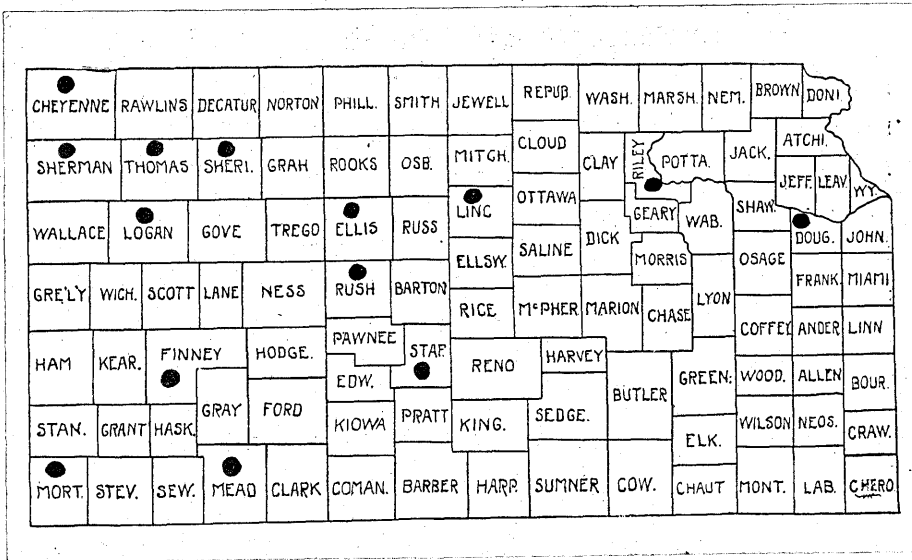
"Body black: eyes and sternalia sanguineous: thorax mutic; two indented transverse lines near the head, of which the anterior one is curved in the middle; three bright rufous lines, of which two are marginal; posterior edge obscurely rufous: hemelytra, coriaceous portion with a rufous exterior and posterior margin, membranaceous tip immaculate: trochanter rufous: tergum rufous with three lateral black punctures: venter, margin and middle rufous.

"Length nine-twentieth inches."

Length of species examined, 11 to 13.5 mm.;
width, 3 to 4 mm.

This is the common box-elder bug.

Distribution: The counties in which it has
been collected are shown on the following map.



Genus Jadera Stal

Van Duzee lists three species of this genus in his catalogue. One of them is found in Kansas.

Jadera haematoloma (Herrich-Schaeffer)

(Plate II, figs. 3, 3A)

Herrich-Schaeffer, Gottlieb August Wilhelm:

Die Wanzenartigen Insecten, Vol. VIII, p. 103, fig. 873, 1848, Leptocoris.

Original description (translated by the writer):

"A black Leptocoris with the lateral margins of the thorax and all the upper part of abdomen bright red; eyes and ocelli brown.

"A rather oval along each side. The wing covers extend somewhat convexly. The fore-margin of thorax thrown up into a broad roll, punctured with large round cells. Dull black; eyes and ocelli brown; the side margins of the thorax, and the entire free margin of the abdomen bright scarlet red.

"This species has the same habitat as the Lygaeidae; the head is distinctly three parted anteriorly; the fore-margin of the thorax is thrown up into a broad roll; the membrane has a vein running across the base

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Plate I

Leptoglossus phyllopus (Linnaeus)

1. Genital capsule of male, ventral aspect.

1A. Left clasper, cephalo-lateral aspect.

Euthochtha galeator (Fabricius)

2. Genital capsule of male, dorsal aspect.

2A. Left clasper, median aspect.

Leptoglossus oppositus (Say)

3. Genital capsule of male, ventral aspect.

3A. Left clasper, caudo-lateral aspect.

Merocoris distinctus Dallas

4. Genital capsule, dorsal aspect.

4A. Left clasper, ventral aspect. (Scale 2x the above)

Archimerus alternatus (Say)

5. Genital capsule of male, dorsal aspect.

5A. Left clasper, caudo-lateral aspect.

Leptoglossus clypealis Heidemann

6. Genital capsule of male, ventral aspect.

6A. Left clasper, caudo-lateral aspect.

Acanthocephala terminalis (Dallas)

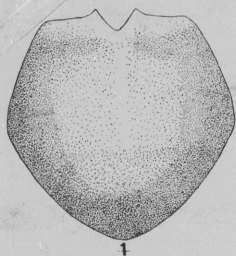
7. Genital capsule of male, dorsal aspect.

7A. Left clasper, caudo-lateral aspect.

Mozena obesa Montandon

8. Genital capsule of male, dorsal aspect.

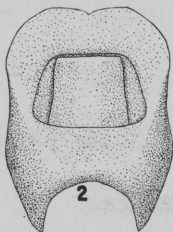
8A. Left clasper, caudo-lateral aspect.



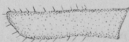
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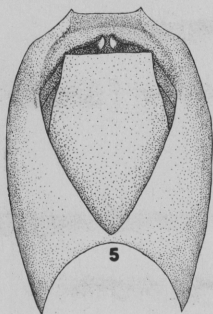
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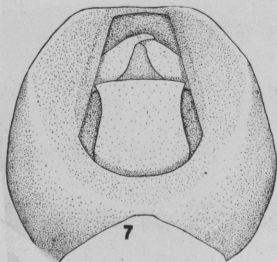
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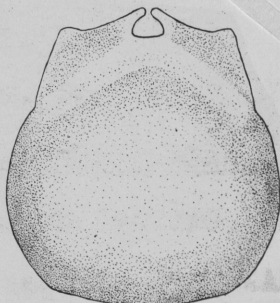
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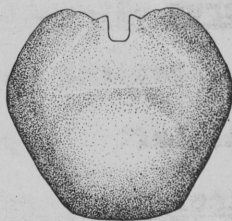
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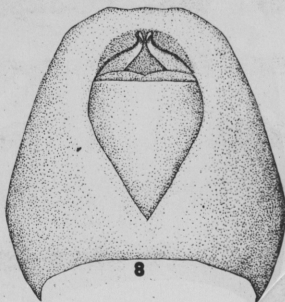
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6



8A



8

Plate II

Leptocoris trivittatus (Say)

1. Genital capsule of male, ventral aspect.

1A. Left clasper, lateral aspect.

Chelinidea vittiger Uhler

2. Genital capsule of male, dorsal aspect.

2A. Left clasper, caudo-lateral aspect.

Jadera haematoloma (H.-S.)

3. Genital capsule of male, ventral aspect.

3A. Left clasper, lateral aspect.

Chariesterus antennator (Fabricius)

4. Genital capsule of male, dorsal aspect.

4A. Left clasper, caudo-lateral aspect. (Scale, 2x above)

Anasa armigera (Say)

5. Genital capsule of male, dorsal aspect.

5A. Left clasper, caudo-lateral aspect. (Scale, 2x above)

Catorhintha mendica Stal

6. Genital capsule of male, dorsal aspect.

6A. Left clasper, caudo-lateral aspect. (Scale, 2x above)

Anasa tristis (De Geer)

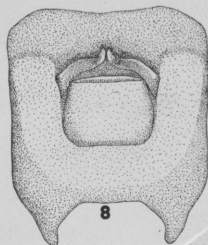
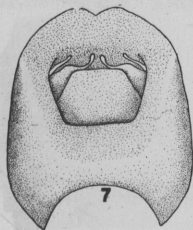
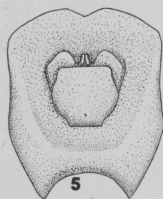
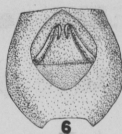
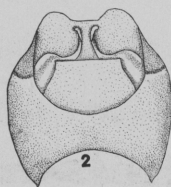
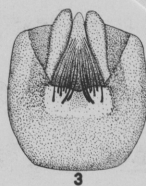
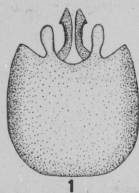
7. Genital capsule of male, dorsal aspect.

7A. Left clasper, cephalo-lateral aspect. (Scale, 2x above)

Anasa repetita Heidemann

8. Genital capsule of male, dorsal aspect.

8A. Left clasper, caudo-lateral aspect.



Corizus lateralis (Say)

9. Genital capsule of male, ventral aspect.

9A. Left clasper, lateral aspect. (Scale, 2x above).

Megalotomus 5-spinosus (Say)

10. Genital capsule of male, dorsal aspect.

10A. Left clasper, lateral aspect.

Darmistus subvittatus Stal

11. Genital capsule of male, caudal aspect.

Alydus pluto Uhler

12. Genital capsule of male, dorsal aspect.

12A. Left clasper, lateral aspect. (Scale, 2x above).

Plate III

Coriomeris humilis (Uhler)

1. Genital capsule of male, dorsal aspect.

1A. Left clasper, dorsal aspect.

Harmostes reflexulus (Say)

2. Genital capsule of male, ventral aspect.

2A. Left clasper, lateral aspect. (Scale, 2x above).

Corizus hyalinus (Fabricius)

3. Genital capsule of male, ventral aspect.

3A. Left clasper, lateral aspect.

Corizus sidae (Fabricius)

4. Genital capsule of male, ventral aspect.

4A. Left clasper, lateral aspect.

Alydus pilosulus H.-S.

5. Genital capsule of male, dorsal aspect.

cl. clasper.

sh. surcapsular hook

5A. Left clasper, lateral aspect.

Stachyocnemus apicalis (Dallas)

6. Genital capsule of male, dorsal aspect.

6A. Left clasper, lateral aspect.

Alydus eurinus (Say)

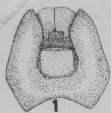
7. Genital capsule of male, dorsal aspect.

7A. Left clasper, lateral aspect. (Scale, 2x above).

Aufeius impressicollis Stal

8. Genital capsule of male, ventral aspect.

8A. Left clasper, lateral aspect. (Scale, 2x above).



1



2A



2



3A



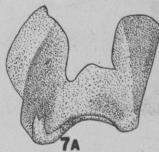
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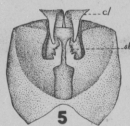
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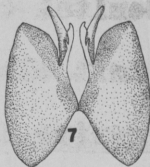
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6A



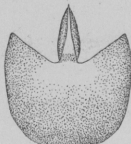
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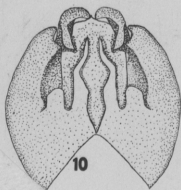
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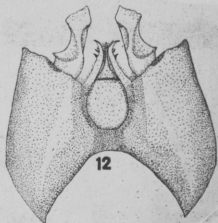
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10



12A



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